No. 200200129

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Washington State University Research Foundation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Tara 2002'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this sixteenth day of September, in the year two thousand two.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Washington State University Research Foundation

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
WA007824

3. VARIETY NAME
~~Tara~~ TARA 2002
May 6-11-2002

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
1610 NE Eastgate Blvd., Pullman, WA 99163 USA

5. TELEPHONE *(Include area code)*
(509) 335-5526

FOR OFFICIAL USE ONLY

PVPO NUMBER
200200129

6. FAX *(Include area code)*
(509) 335-7237

FILING DATE
April 1, 2002

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Corporation

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
Washington

9. DATE OF INCORPORATION
July 7, 1939

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Leona C. Fitzmaurice, Ph.D., Washington State University Research Foundation, 1610 NE Eastgate Blvd., Pullman, WA 99163 USA

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 2705.00
DATE 4-1-2002

CERTIFICATION FEE:
$ 320 CD
DATE 6/11/02

11. TELEPHONE *(Include area code)*
(509) 335-4363

12. FAX *(Include area code)*
(509) 335-7237

13. E-MAIL
fitzmaur@wsu.edu

14. CROP KIND *(Common Name)*
Spring Wheat

15. GENUS AND SPECIES NAME OF CROP
Triticum aestivum L.

16. FAMILY NAME *(Botanical)*
Gramineae

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($2,705), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 20 and 21 below)* ☒ NO *(If "no", go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☐ YES ☐ NO
IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, *etc.* ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER	SIGNATURE OF OWNER
Leona Fitzmaurice	
NAME *(Please print or type)*: Leona Fitzmaurice	NAME *(Please print or type)*
CAPACITY OR TITLE: Executive Director	DATE: 03/29/02
CAPACITY OR TITLE	DATE

INSTRUCTIONS 200200129

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $2,705 ($320 filing fee and $2,385 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvp.htm

ITEM

18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

19. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

22. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

23. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

21. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*
NA

22. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*
WA007824 "Tara" was first sold on March 21, 2002 (per Washington State Crop Improvement Association, 3/26/02).

23. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*
NA

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089. http://www.ams.usda.gov/lsg/seed/ls-sd.htm

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

S&T-470 (04-01) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (02-99) which is obsolete.

EXHIBIT A - ORIGIN AND BREEDING HISTORY

~~TARA~~ TARA 2002' MH 6-11-02

1. Genealogy: Kodiak/Spillman//Westbred 906R

2. Stages of Selection and Multiplication:
1987: Final cross made: WSU research land.

1988: F_1 generation; WSU research land; all plants uniform.

1989: F_2 bulk population; WSU research land; selected 100 random spikes; segregating for maturity, plant height, and disease resistance.

1990: F_3 bulk population; WSU research land; no selection applied; segregating for maturity, plant height, and disease resistance.

1991: F_4 bulk population; WSU research land; selected 150 random spikes; segregating for maturity, plant height, and disease resistance.

1992: F_5 head row (F_4-derived); WSU research land; selected based on appropriate plant height, maturity, and disease resistance; no segregation within the single row.

1993: F_6 Single Plot Nursery (tested as K9300092); WSU research land; selected based on appropriate plant height, maturity, field resistance to leaf and stripe rust, grain protein content, test weight, grain yield, and milling/baking quality; no segregation within the plot.

1994: F_7 Preliminary Yield Trial; WSU research land; selected based on appropriate plant height, maturity, field resistance to leaf and stripe rust, grain protein content, test weight, grain yield, and milling/baking quality; no segregation within the plot.

1995: F_8 State Advanced Yield Trial; WSU research land; selected based on appropriate plant height, maturity, field resistance to leaf and stripe rust, grain protein content, test weight, grain yield, and milling/baking quality; no segregation within the plot.

1996: F_9 State Advanced Yield Trial; WSU Commercial Variety Trial; Tri-State Variety Trial (WA, OR, ID), (tested as WA007824); selected based on appropriate plant height, maturity, field resistance to leaf and stripe rust, grain protein content, test weight, grain yield, and milling/baking quality; no segregation within the plot.

1997: F_{10} WSU Commercial Variety Trial; Western Regional Performance Nursery; selected based on appropriate plant height, maturity, field resistance to leaf and stripe rust, grain protein content, test weight, grain yield, and milling/baking quality; no segregation within the plot.

EXHIBIT A - ORIGIN AND BREEDING HISTORY, cont.

1998: F_{11} WSU Commercial Variety Trial; Tri-State Variety Trial (WA, OR, ID); Western Regional Performance Nursery; Uniform Regional Performance Nursery; selected based on appropriate plant height, maturity, field resistance to leaf and stripe rust, grain protein content, test weight, grain yield, and milling/baking quality; no segregation within the plot.

1999: F_{12} WSU Commercial Variety Trial; Uniform Regional Performance Nursery; selected based on appropriate plant height, maturity, field resistance to leaf and stripe rust, grain protein content, test weight, grain yield, and milling/baking quality; no segregation within the plot.

A one acre isolation block of Pre-breeder seed of Tara was established at the WSU-Othello Research station in March, 1999. The field was planted with F_{12} bulk seed harvested from WSU research land. The field was rogued and individual heads were selected for further increase. Heads were individually threshed and inspected for kernel uniformity and market class verification, and seed from each selected head was planted in individual rows in March, 2000.

2000: F_{13} WSU Commercial Variety Trial; selected based on appropriate plant height, maturity, field resistance to leaf and stripe rust, grain protein content, test weight, grain yield, and milling/baking quality; no segregation within the plot.

Approximately 1400 separate 10 ft rows (head rows) were planted on 0.75 acre at the WSU-Othello Research station for Breeder seed production. The headrow block was inspected for phenotypic uniformity, and non-conforming rows were removed prior to harvest. In August, 2000 individual F_{14} heads (1900) were selected at random from the Breeder seed block to produce additional Breeder seed in sufficient quantity to last the life of the variety. The remaining headrows, representing a reselection of the original headrow block based on phenotypic uniformity, was bulk harvested, producing 1810 lb of Breeder seed.

2001: WA007824 released as the cultivar 'Tara': PI617073

Heads selected from the 2000 Breeder seed headrow block were individually threshed, then planted separately in March, 2001 at the WSU-Othello Research Station for a second round of Breeder seed production. Bulked seed from the original 2000 Breeder seed headrow block was planted in March, 2001 on 13 acres for Foundation seed production.

3. Evidence of uniformity and stability:

Tara has been observed to be stable and uniform with respect to plant morphology since 1999 as an $F_{4:11}$ advanced line. This represents three generations (1999-2001) through which this stability and uniformity have been observed.

4. Variants during reproduction:

TARA 2002' ~~Tara~~ contains a white wheat variant that was observed during the Pre-breeder, Breeder and Foundation seed increases. This white wheat variant has been established at a level of not more than 5 seeds per 1000 g.

MAH 6-11-02

EXHIBIT B. – NOVELTY STATEMENT

'Tara 2602'

~~Tara~~ is most similar Westbred 926, which it is intended to replace in the intermediate to high rainfall (>18 inches of average annual precipitation), non-irrigated wheat production regions of Washington State based on its tolerance to the Hessian fly, high grain yield potential, and superior end-use quality, and to Scarlet, the predominant hard red spring wheat in commercial production in the semi-arid region of Washington State.

A. Agronomic Characteristics

Tara can be differentiated from Scarlet and Westbred 926 based on heading date and height differences as described below.

1. Tara is earlier in heading than both Scarlet (2 days) and Westbred 926 (1 day) under Washington State field conditions as shown in Table B1 below.
2. Tara is 1 inch shorter in plant height when compared to Scarlet and 2 inches taller than Westbred 926 under Washington State field conditions as shown in Table B1 below.

Table B1. Heading date and plant height of Tara, Scarlet, and Westbred 926 in commercial variety trials from 6 locations in Washington State in 2000.

		Location						
Trait	Variety	Lind	Ritzville	Pomeroy	Pullman	Fairfield	Royal Slope	Avg.
Heading (days after Jan 1)	Tara	148	160	165	168	169	147	160
	Scarlet	151	161	167	171	174	149	162
	Westbred 926	148	162	166	170	171	148	161
Height (inches)	Tara	25	31	30	34	36	34	32
	Scarlet	27	29	32	34	39	37	33
	Westbred 926	27	28	30	33	34	30	30

B. Genetic Characteristics

The novelty of Tara is demonstrated by high-molecular weight (HMW) glutenin profiles (Payne et al. 1983) and microsatellite fingerprint data that, in combination, differentiate, Tara, Westbred 926, and Scarlet. The HMW glutenin profile for Tara is [2* 17+18 5+10], whereas Westbred 926 and Scarlet are [2* 17+18 5+10] and [1 7+9 5+10], respectively (Figure 1).

The microsatellite *Xgwm160* is located on chromosome 4AL, near RFLP *Xcdo 545* (Röder et al., 1998). Amplification of *Xgwm160* reveals a 183bp allele in Tara, whereas a 175 bp and 205 bp allele is present in Westbred 926 and Scarlet, respectively (Figure 2).

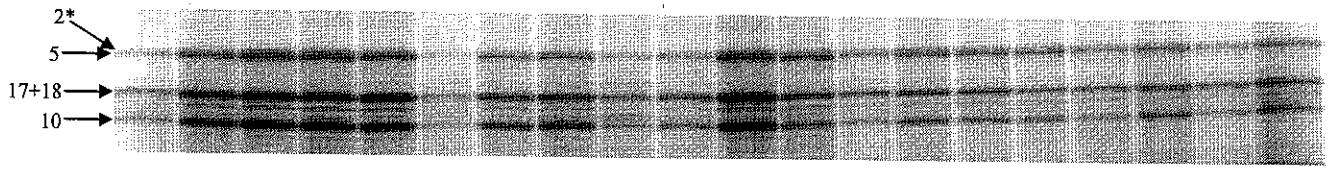
References:

Payne, PI, and GJ Lawrence. 1983. Catalogue of alleles for the complex gene loci, Glu-A1, Glu-B1, and Glu-D1, which code for high-molecular-weight subunits of glutenin in hexaploid wheat. Cer. Res. Comm. 11:29-35.

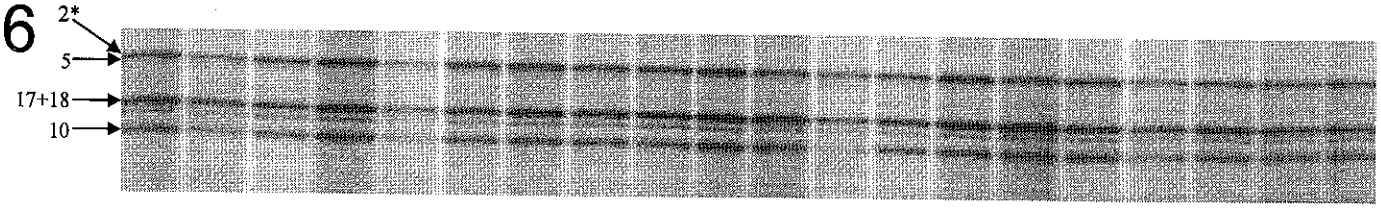
Röder et al. 1998. A microsatellite map of wheat. Genetics 149:2007-2023.

MAH
6-11-02

~~Tara~~
'Tara 2002'



Westbred 926



Scarlet

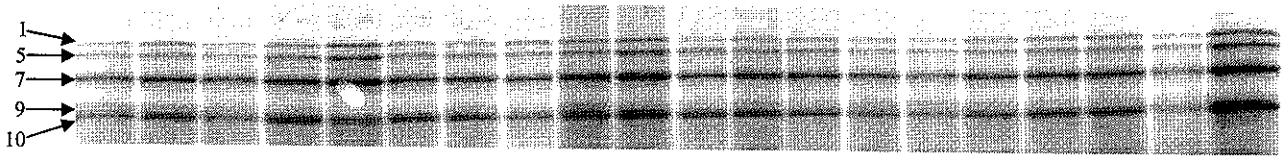


Figure 1. High-molecular weight glutenin profiles of bulked (first lane) and individual progeny extracts of Tara, Westbred 926, and Scarlet kernels. Proteins were resolved via SDS-PAGE, and visualized using Coomassie Brilliant Blue (Payne and Lawrence, 1983).

6

2002129

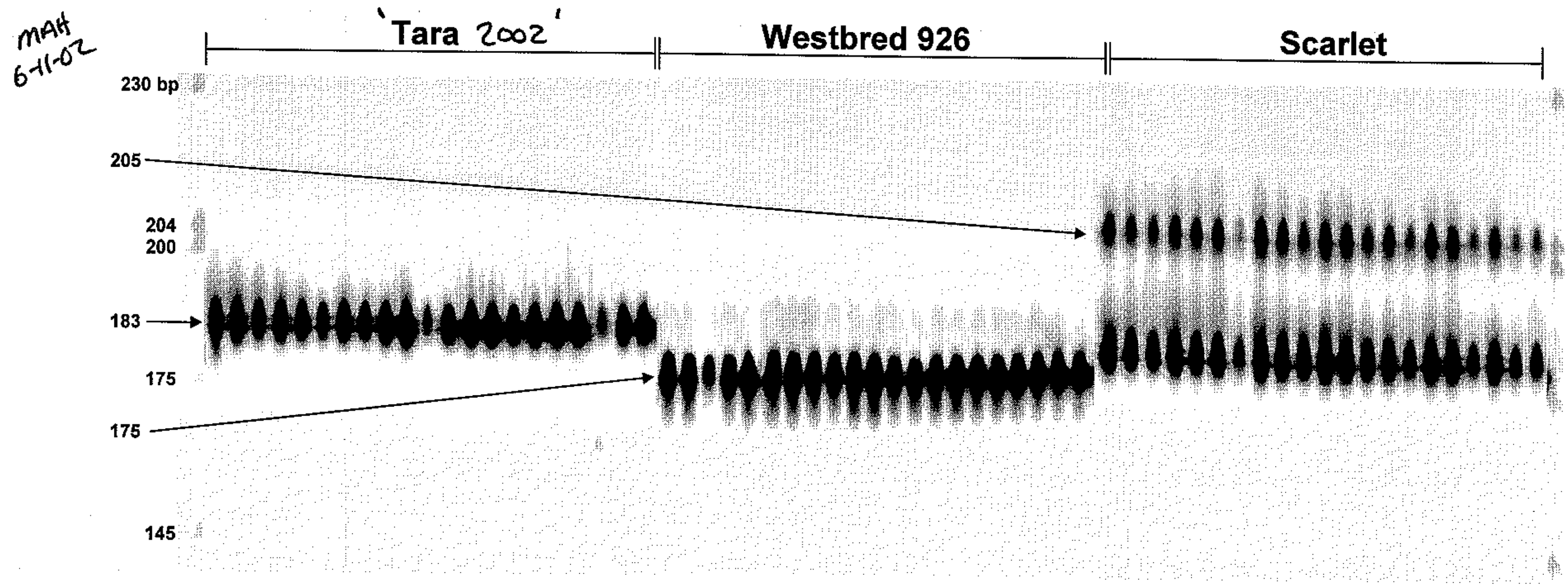


Figure 2. Microsatellite locus *Xgwm160* amplified from bulked (first lane of each cultivar) and individual progeny of Tara, Westbred 926, and Scarlet. Lanes 1 and 65 are molecular weight standards at 230, 204, 200, 175 and 145 basepairs. DNA was obtained from young leaf tissue; amplified products were resolved in denaturing polyacrylamide and visualized with an automated DNA Li-cor Sequenced (Li-cor, Lincoln, NE). The forward primer for *Xgwm160* was labeled with fluorescent dye detected at 700 nanometers.

200200129

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved - OMB No. 0581-0055

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is 0581-0055. The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S)
Washington State University Research Foundation

ADDRESS (Street and No. or RD No., City, State, and Zip Code)
1610 NE Eastgate Blvd, Pullman, WA 99163 USA

FOR OFFICIAL USE ONLY

PVPO NUMBER 200200129

VARIETY NAME 'Tara 2002' MAH 6-16-02

TEMPORARY OR EXPERIMENTAL DESIGNATION

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. [0][9] or [0][9]) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used:
Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

[1] 1=Common 2=Durum 3=Club 4=Other (SPECIFY): _____

2. VERNALIZATION:

[1] 1=Spring 2=Winter 3=Other (SPECIFY): _____

3. COLEOPTILE ANTHOCYANIN:

[1] 1=Absent 2=Present

4. JUVENILE PLANT GROWTH:

[3] 1=Prostrate 2=Semi-erect 3=Erect

5. PLANT COLOR (boot stage):

[2] 1 = Yellow-Green 2 = Green 3 = Blue-Green

6. FLAG LEAF (boot stage):

[2] 1 = Erect 2 = Recurved [1] 1 = Not Twisted 2 = Twisted

7. EAR EMERGENCE:

[0][3] Number of Days Earlier Than Spillman *

[0][0] Number of Days Later Than Westbred 926 *

8. ANTHER COLOR:

[1] 1 = Yellow 2 = Purple

9. PLANT HEIGHT (from soil to top of head, excluding awns):

[0][4] cm Taller Than Westbred 926 *

[1][3] cm Shorter Than Butte 86 *

* Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

10. STEM:

A. ANTHOCYANIN

[1] 1= Absent 2=Present

B. WAXY BLOOM

[1] 1=Absent 2=Present

C. HAIRINESS (last internode of rachis)

[1] 1=Absent 2=Present

D. INTERNODE (SPECIFY NUMBER)

[1] 1= Hollow 2=Semi-solid 3=Solid

E. PEDUNCLE

[2] 1=Absent 2=Present

[32] cm Length

11. HEAD (at Maturity):

A. DENSITY

[2] 1=Lax 2=Middense 3= Dense

B. SHAPE

[1] 1 = Tapering 2= Strap 3 = Clavate 4 = Other (SPECIFY): _____

C. CURVATURE

[2] 1 = Erect 2 = Inclined 3 = Recurved

D. AWNEDNESS

[4] 1 = Awnless 2 = Apically Awnletted 3 = Awnletted 4 = Awned

12. GLUMES (at Maturity):

A. COLOR

[1] 1 = White 2 = Tan 3 = Other (SPECIFY) : _____

B. SHOULDER

[6] 1 = Wanting 2 = Oblique 3 = Rounded 4 = Square 5 = Elevated 6 = Apiculate

C. BEAK

[3] 1 = Obtuse 2 = Acute 3 =Acuminate

D. LENGTH

[2] 1 = Short (ca. 7mm) 2 = Medium (ca. 8mm) 3 = Long (ca. 9mm)

12. GLUMES (at Maturity) *Continued*:

200200129

E. WIDTH

[3] 1 = Narrow (ca. 3mm) 2 = Medium (ca. 3.5mm) 3 = Wide (ca. 4mm)

13. SEED:

A. SHAPE

[3] 1 = Ovate 2 = Oval 3 = Elliptical

B. CHEEK

[1] 1=Rounded 2=Angular

C. BRUSH

[1] 1=Short 2=Medium 3=Long

[1] 1 = Not Collared 2 = Collared

D. CREASE

[1] 1 = Width 60% or less of Kernel
2 = Width 80% or less of Kernel
3 = Width Nearly as Wide as Kernel

[1] 1 = Depth 20% or less of Kernel
2 = Depth 35% or less of Kernel
3 = Depth 50% or less of Kernel

E. Color

[3] 1=White 2= Amber 3= Red
4= OTHER (Specify)

G. PHENOL REACTION *(see instructions)*:

[4] 1 = Ivory 2 = Fawn
3 = Light Brown 4 = Dark Brown
5 = Black

F. TEXTURE

[1] 1=Hard 2=Soft

14. DISEASE: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

[0] Stem Rust *(Puccinia graminis* f. sp. *tritici)*

[3] Stripe Rust *(Puccinia striiformis)*

[0] Tan Spot *(Pyrenophora tritici-repentis)*

[0] Halo Spot *(Selenophoma donacis)*

[0] *Septoria nodorum* (Glume Blotch)

[0] *Septoria avenae* (Speckled Leaf Disease)

[0] *Septoria tritici* (Speckled Leaf Blotch)

[0] Scab (*Fusarium* spp.)

[3] Leaf Rust *(Puccinia recondita* f. sp. *tritici)*

[0] Loose Smut *(Ustilago tritici)*

[0] Flag Smut *(Urocystis agropyri)*

[0] Common Bunt *(Tilletia tritici* or *T. laevis)*

[0] Dwarf Bunt *(Tilletia controversa)*

[0] Karnal Bunt *(Tilletia indica)*

[0] Powdery Mildew *(Erysiphe graminis* f. sp. *tritici)*

[0] "Snow Molds"

14. Disease *(Continued)* (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

200200129

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

[0]	"Black Point" (Kernel Smudge)	[0]	Common Root Rot *(Fusarium, Cochliabolus* and *Bipolaris* spp.*)*
[0]	Barley Yellow Dwarf Virus (BYDV)	[1]	Rhizoctonia Root Rot *(Rhizoctonia solani)*
[0]	Soilborne Mosaic Virus (SBMV)	[0]	Black Chaff *(Xanthomonas campestris* pv. *translucens)*
[0]	Wheat Yellow (Spindle Streak) Mosaic Virus	[0]	Bacterial Leaf Blight *(Pseudomonas syringae* pv. *syringae)*
[0]	Wheat Streak Mosaic Virus (WSMV)	[ ]	Other (SPECIFY)
[ ]	Other (SPECIFY)	[ ]	Other (SPECIFY)
[ ]	Other (SPECIFY)	[ ]	Other (SPECIFY)
[ ]	Other (SPECIFY)	[ ]	Other (SPECIFY)

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

[2]	Hessian Fly *(Mayetiola destructor)*	[ ]	Other (SPECIFY)
[0]	Stem Sawfly *(Cephus* spp.*)*	[ ]	Other (SPECIFY)
[0]	Cereal Leaf Beetle *(Oulema melanopa)*	[ ]	Other (SPECIFY)
[1]	Russian Aphid *(Diuraphis noxia*	[ ]	Other (SPECIFY)
[0]	Greenbug *(Schizaphis graminum)*	[ ]	Other (SPECIFY)
[1]	Aphids	[ ]	Other (SPECIFY)

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS

EXHIBIT D – OPTIONAL SUPPORTING INFORMATION

MAH 6-11-02

Milling and Baking Quality: 'Tara 2002'

The end-use quality performance of ~~Tara~~ is compared with hard red spring wheat varieties Westbred 926 and Scarlet through t-test analyses (Table D1). The grain test weight of Tara is similar to that of Westbred 926, and higher than that of Scarlet. The grain protein concentration of Tara is lower (poorer) than that of Westbred 926, but higher (better) than that of Scarlet. The flour yield of Tara is higher than that of Westbred 926, and similar to that of Scarlet. The flour ash content of Tara is lower (better) than that of Westbred 926, but higher (poorer) than that of Scarlet. The milling score for Tara is higher (better) than that for Westbred 926, but lower (poorer) than that for Scarlet. The flour protein concentration of Tara is higher (better) than that of Scarlet, but lower (poorer) than that for Westbred 926. Mixograph water absorption rates for Tara are similar to those for Westbred 926, but lower (poorer) than those for Scarlet. The mixing time of flour extracted from Tara is significantly longer than those for Westbred 926 and Scarlet, reflecting the strong gluten properties of Tara. Tara has significantly larger (better) bread loaf volumes than the other two varieties.

In general, Tara has excellent grain and milling quality. Of particular note are its excellent bread loaf volumes, demonstrating its superiority over other adapted hard red spring varieties from the region for bread making purposes.

Table D1: Mean, least significant difference (LSD), probability level (P-value) and number of pairwise comparisons made (N) in t-test analyses for various end-use quality characteristics.

Variety	Test Weight (lb/bu)	Grain Protein (%)	Flour Yield (%)	Flour Ash (%)	Milling Score	Flour Protein (%)	Mixing Absorption (%)	Baking Absorption (%)	Mixing Time (min)	Loaf Volume (cc)
Tara 2002	62.2	13.4	67.2*	0.384*	82.5*	12.1	62.6	65.7	5.81*	1014*
Westbred 926	61.9	13.8*	66.2	0.420	79.6	12.4*	62.6	66.2	4.20	977
LSD	0.28	0.16	0.29	0.01	0.46	0.16	0.5	0.8	0.42	20
P-value	0.07	0.00	0.00	0.00	0.00	0.00	0.92	0.16	0.00	0.00
N	48	48	47	48	47	48	43	39	39	39
Tara	62.2*	13.4*	67.2	0.380	82.5	12.0*	62.4	65.5	5.83*	1014*
Scarlet	61.8	13.1	67.6	0.365*	83.7*	11.8	63.0*	66.2	4.48	945
LSD	0.22	0.19	0.42	0.01	0.54	0.2	0.5	0.7	0.50	18
P-value	0.00	0.01	0.05	0.00	0.00	0.03	0.02	0.07	0.00	0.00
N	51	51	51	51	51	51	46	42	42	42

*Significantly different at p = 0.05

MAH 6-11-02

20020126

REFERENCE LOCALLY (include form number and edition date on all reproductions) FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Washington State University Research Foundation	WA007824	~~Tara~~ 'Tara 2002' MAH 6-11-02
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)	5. TELEPHONE (Include area code)	6. FAX (Include area code)
1610 NE Eastgate Blvd., Pullman, WA 99163 USA	(509) 335-5526	(509) 335-7237

7. PVPO NUMBER 200200129

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain** [X] YES [ ]

9. Is the applicant (individual or company) a U.S. National or a U.S. based company? **If no, give name of country** [X] YES [ ] NO

10. Is the applicant the original owner? [X] YES [ ] NO **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

[ ] YES [ ] NO **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

[X] YES [ ] NO **If no, give name of country**

11. Additional explanation on ownership *(If needed, use the reverse for extra space):*

Tara was developed by Dr. Kimberlee K. Kidwell, Spring Wheat Breeder and Geneticist at Washington State University.

Washington State Univewrsity's ownership interests are assigned to the Washington State Research Foundation.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 6 minutes per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.